Earth's Structure and Processes

8-3 The student will demonstrate an understanding of materials that determine the structure of Earth and the processes that have altered this structure. (Earth Science)

8.3.9 Identify and illustrate geologic features of South Carolina and other regions of the world through the use of imagery (including aerial photography and satellite imagery) and topographic maps.

Taxonomy levels: 1.2-A Remember Factual Knowledge;
2.2-B Understand Conceptual Knowledge

Previous/future knowledge: This indicator contains new conceptual material.

It is essential for students to know that geologic features on Earth can be identified and visually modeled through the use of aerial photography, satellite imagery, and topographic maps.

Imagery

- Highflying aircraft and satellites high above Earth use sensors and cameras to gather information about Earth's landforms and resources.
- Computers create images from the data; scientists identify specific features by the combination of colors and shapes that the feature makes on the satellite image.

Geologic features (for example, mountains, river and tributary flow, lakes, farmland, forests, Carolina bays, or coastal features) can be identified using South Carolina satellite images and aerial photographs, as well as other imagery from regions of the world.

Topographic maps

- These are maps that use symbols to portray the land as if viewed from above.
- They provide information on elevation, relief, and slope of the ground surface, as well as the location of roads, buildings, swamps, and other features, natural and man-made.
- Along with the scale and symbols, the contour lines and the contour interval are critical to understanding the topographic map.

Geologic features can be identified on a topographic map using the contour lines and interval spacing as well as the symbols on the map. Geologic features can also be illustrated the geologic feature with a three-dimensional model or profile based on the topographic data.

It is not essential for students to know how satellite imagery and aerial photographs use the electromagnetic spectrum to capture the information.

Assessment Guidelines:

One objective of this indicator is to *identify* features on Earth using aerial photography, satellite images, and topographic maps; therefore, the primary focus of assessment should be to locate this information on the appropriate materials. Another objective of this indicator is to *illustrate* geologic features found on aerial photography, satellite images, and topographic maps; therefore, the primary focus of assessment should also be to give illustrations of these concepts or use illustrations to show understanding of these materials. However, appropriate assessments should also require students to *recall* the shape or illustrated property of the geologic feature; *identify* symbols and colors used on these images or maps; or *compare* features, details, or contours on one topographic map with another in a different landform region.